

SWAHILI TECHNICAL TERMINOLOGY: PROBLEMS OF DEVELOPMENT AND USAGE IN KENYA¹

KITULA KING'EI

Introduction

It is a fact that modern science and technology from the west has reached Africa through European languages. Historically, these languages have also served as the vehicles of formal education in Africa to the exclusion of Swahili and other local languages. Therefore, as Mazrui & Mazrui (1995) note, the colonial language and educational policy in Africa „... fell far short of giving Kiswahili a chance to evolve and develop into a language of scientific discourse and analysis“ (p. 25).

The deficiency of African languages such as Swahili in scientific and technical registers is both artificial and historically understandable. Secondly, it is easily remediable given that the basic core of the said vocabulary is shared and international in nature (Alexandrie, 1961). Therefore such a deficiency should present no barrier to Swahili serving as a medium of instruction in higher education.

However, the problem of lack of Swahili technical terminology is also felt by other professional language users apart from lecturers or teachers. For instance, recently, a broadcaster friend of mine „challenged“ me to provide him with the „accepted“ Swahili technical terminology that aptly translates the following concepts from the English language:

2000 year bug	solicitor-general
Islamic fundamentalist	process
2000 year compliant	horticulture
vigilante groups	anthrax
infrastructure	mortuary
condoms	water hyacinth
attorney-general	war victims

After a lengthy discussion, we both agreed that it was impossible to agree on the best Swahili terminology for each concept at once. We also agreed that the problem of developing suitable terminology was common to all professions and that Kenya badly needed a forum for discussing Swahili technical vocabulary.

The development of technical vocabulary according to McCarthy (1990), calls for knowledge of the etymology of the language. It is this knowledge that will inform the expert

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whether the word or lexeme is a homonym, polysemy, synonym, hyponym or has a connotative or associative meaning. This view is also supported by Tumbo (1982: 92) when he stresses that the expert must consider both the intrinsic and extrinsic characteristics of a concept before adopting it. In fact, Tumbo concludes that terminologists must be formally trained to the highest international standards to ensure the international character of all technical terms.

This leads to the normative question: who should invent/develop or create terminology - technical or otherwise? Is every lecturer or Professor of Swahili, for instance, in possession of the necessary training and capability to carry out this most sophisticated task? Assuming the answer is in the negative, then what is one to do if one intends to express any technical or scientific concept in the medium of Swahili where all the resource material is in English?

Whereas English, German and French can boast of self-sufficiency in literature in all fields of study, Swahili is a relatively much younger language of education and lacks literature even in the most basic aspects of the language itself. This situation often forces lecturers in the universities teaching Swahili to undertake 'translation' of concepts or even loan words in order to communicate with their students. This 'shoe-string' terminological invention is necessary in the teaching of technical concepts in such courses as:

Study of language (phonetics, phonology, morphology, syntax, semantics), Historical Linguistics, Psycholinguistics, Second Language Learning, Dialectology, Discourse Analysis, Socio-Linguistics, Ethnolinguistics, Language and Culture, Theories of Literary Criticism, and other similar ones

Therefore, quite often, lecturing in the Swahili medium entails being able to translate from English into Swahili because most of the material to be taught is sourced from English original publications. This applies especially to courses on linguistics, literary criticism and language skills. In this regard, only courses in Swahili grammar could be said to be almost self-sufficient in references in the language thanks to the works by scholars such as Kapinga, Mbaabu, Mdee, Nkwera and Mfalme, among others. The works done by other grammarians who wrote in English such as Ashton, Polomé, Myachina and Vitale, among others, still form basic reading for the subject. The same case applies to courses such as classical Swahili poetry whereby studies in English such as Hichens (1962), Harries (1962), Knappert (1967; 1971), Allen (1967; 1977) and Abdulaziz (1979) still dominate the scene (an exception here being Mlamali (1980) and Shariff (1992).)

As far as the use of Swahili in teaching natural sciences and other technical subjects at the tertiary level is concerned, Chimera (1998) suggests that this should be done gradually as the language grows and develops in its technical domains. He is of the view that it is easier to teach social sciences and at lower levels first than it is to use Swahili to teach technical and scientific subjects at the tertiary level.

If Swahili is to develop and modernise, it has to be more liberal in expanding its technical and scientific domains. The two registers should more or less be of comparable size as is the case with English (Chimera 1998: 37). However, the question that naturally arises here is,

how is this ideal to be achieved? Perhaps, by deciding to teach linguistics and literature in Swahili, East African universities want to face the terminological challenge and solve the problems as they occurred. After decades of experimenting, the time has come for all stakeholders to come to terms with the problem.

Theoretical Background

Lexical expansion or development in strict formal sense is based on and guided by a systematic theoretical model or framework. In most cases, the underlying philosophy is based on the needs and dictates of the usage of the receptor language. The salient aspects regarding the process of technical vocabulary development include:

- (a) the reasons or justification for the invention of new words.
- (b) techniques of creating new vocabulary
- (c) procedures followed in the process.

The need to develop new technical vocabulary has grown tremendously in the world in the post-world war era (Sager and Johnson 1978). This need arises out of the discoveries and fast developments in the scientific, industrial, socio-cultural and educational fields. The magnificent revolution in transport and communication has fuelled the creation of the „global village“ with highly sophisticated political and economic systems. This scenario has demanded fundamental and immediate development in language use in various fields or registers. Generally, technical lexical expansion and development takes place at two different but related levels:

- (a) the invention of new technical lexicon to express emerging needs from new discoveries, ideas or concepts
- (b) the creation of a large body of new vocabulary and/or modernization of the existing lexicon to cater for different new fields.

This article addresses both levels. As Fishman (1977) states, in recent years in Kenya and East Africa as a whole, new technical Swahili vocabulary has become necessary to serve communication in many fields that have hitherto been served by English, the official language. Such fields include communication, technology and higher education. To date, there are a number of terminological theorists whose views have underlied Swahili lexicological development over the years. These include Felber (1984), Picht & Draskau (1985) and Kiingi (1989) among others. These experts' postulations on the science of terminological engineering may be summarised into a few tenets although they may differ in slight ways. In a nutshell, they stress that technical terminology ought to satisfy the principles of:

morphophonological resemblance to the adopting language; acceptability by speakers and internationalist character, conciseness and specificity, brevity, productivity and morphological adherence to the structure of the other adopted terminologies.

Kenya's National Language Challenge

Historically, Kenya has depended heavily on the terminologies developed by the Institute of Swahili Research (TUKI) of the University of Dar es Salaam and other Tanzanian language development agencies such as BAKITA, UKUTA, Institute of Adult Education, Institute of Education, Department of National Language in the Ministry of Culture and Youth and Institute of Swahili and Foreign Languages, Zanzibar. Since 1964 when TUKI became part of the University of Dar es Salaam, Kenya has had no direct or significant impact in the development of Swahili terminology although it is a major consumer of the vocabulary produced by Tanzania both in the cultural and scientific fields (Mbaabu 1991; 1996).

However, at the university level, the University of Dar es Salaam and Kenyan universities have actively exchanged expertise in terminological development albeit unofficially and only occasionally. A good example is the UNESCO/SIDA sponsored seminar on the issues in the standardization of Swahili terminology held in Dar es Salaam 1989 which attracted a number of Kenyan participants. In brief, it is a fact that even though Kenyan Swahili scholars and experts lack an official forum and/or organ for co-ordinating, initiating and streamlining Swahili terminological development, they have seized every opportunity to contribute to this effort as evidenced by the work of Nabahany (1985), Kitsao (1989), Mbaabu (1985; 1992 and 1996) and Chimera (1998), among others.

Kenya's national language policy since independence has given English a special and prestigious status as the official language vis-à-vis that of Swahili, the national language. Although Swahili was declared the national language as early as 1965, no major step was taken to develop the technical domains of the language and its use was relegated to mostly informal circles. However, this situation has changed drastically with the change in policy in 1985 which made Swahili a compulsory subject of study in both primary and secondary levels. This change in effect meant that students would have to do well in Swahili in order to ensure attainment of the required minimum grade for university admission.

This shift in language policy revolutionized the teaching of Swahili in Kenya especially at the tertiary level. At both secondary school and university levels, the teaching of Swahili language and literature has been more integrated in the new system of education than hitherto was the case. This new stress on the importance of Swahili has precipitated the need to develop a large repertoire of new technical vocabulary to make it possible to teach all the aspects of Swahili in the medium of the language.

The challenge occasioned by this development has simply been enormous and formidable. However, unlike Tanzania, Malaysia, India, Indonesia, Israel and other countries which have been developing and modernizing their national languages, Kenya lacks an official authoritative body to co-ordinate the task (Masabo and Mwansoko 1992). The state has neither established organs to deal with the developing of technical Swahili nor encouraged private professional organizations such as writers, journalists or publishers and other stakeholders to contribute. As a result, Swahili teachers, students and scholars have largely been left to their own devices to fend for themselves in as far as technical lexicon is concerned.

This state of affairs has seen the Kenyan Swahili adopt wholesale a large body of vocabulary developed by the Institute of Kiswahili Research (IUKI) and BAKITA, both Tanzanian language bodies.

Terminological Development and User-Preference

One of the major methods used by Swahili experts to develop technical vocabulary in the language is calquing or in this case, Swahilization of the loan. In this process, the adopted word is structured morphologically to bear the likeness of the bantu word.

However, even though this technique has been very productive, some of the vocabulary so developed at present has caused concerns from the speakers. One of the problems is whether or not this kind of vocabulary is solely for the consumption of the experts or, to a certain extent, whether the ordinary Swahili speaker is expected to use and understand it, too. This concern is borne out of the fact that such technical words presume knowledge of English on the part of the user. Secondly, there appears to be no morphophonological framework or system of Swahilizing the loans.

Here are some examples drawn from Masabo and Mwansoko (1992) from the field of motor-vehicle mechanics:

English	new recommended Swahili equivalent
cable	<i>kebo</i>
peddle	<i>pedeli</i>
aerial	<i>erio</i>
hose	<i>hozi</i>
cylinder	<i>silinda</i>
gasket	<i>gasketi</i>

Although the Swahili equivalents are easy to pronounce and remember, they so closely resemble their English originals that familiarity with English is almost assumed. The same goes for words borrowed and nativised from other non-African languages such as Latin, Greek, German, French and so forth. Perhaps, one may argue that while most scientific terms may seem difficult to pronounce in their Swahilized form, they will be nativized with time. Swahili has nativised many words in this manner with a high degree of success over the years as the examples here will show:

English	Swahili
location	<i>lokesheni</i>
remand	<i>rumande</i>
reserve	<i>rizavu</i>
report	<i>ripoti</i>
circus	<i>sarakasi</i>
squatter	<i>sikwota</i>
sweater	<i>sweta</i>

speaker	<i>spika</i>
week-end	<i>wikendi</i>
bank	<i>benki</i>

Even though the above examples indicate that the terms have been completely adopted, there are other loans of a similar category that seem to have been either only partially adopted or rejected altogether by users

English	suggested	accepted/adopted
ship	<i>merikebu</i>	<i>meli</i>
sample	<i>sampuli</i>	<i>aina</i>
store	<i>ghala</i>	<i>stoo</i>
tractor	<i>tingatinga</i>	<i>trekta</i>
bus conductor	<i>utingo</i>	<i>kondakta</i>

In other cases, users seem to prefer the English loan translation loans or the Arabic loan and not necessarily the easier-to-pronounce form. Examples:

English	suggested	adopted/preferred
allowance	<i>alowenzi</i>	<i>marupurupu</i>
change	<i>chenji</i>	<i>badilisha</i>
board	<i>bodi</i>	<i>halmashauri</i>
register	<i>andikisha</i>	<i>sajilisha</i>
community	<i>jumuiya</i>	<i>umoja</i>
nations	<i>madola</i>	<i>mataifa</i>

Swahili has not borrowed as much lately from local languages as it has from say English or Arabic. It is not clear why terminologists have shunned neighbouring Bantu and other African languages which may be rich in certain technical domains that Swahili lacks in. It is also striking to note that whereas certain local loan words e.g. *ikulu* (Kinyamwezi) for 'State House' or *kitivo* (Kipare) for 'faculty' are fully nativized in Swahili, other suggested loans such as *umangimeza* (Kichaga) for 'bureaucracy' are never used both in written and spoken Swahili. As Temo (1984: 118) observes, these local languages are not as endowed with scientific and technological terms as they are with socio-cultural ones.

However, although there is a strong claim among some Swahili experts that the potential of the language needs to be explored more aggressively in building technical terminology, scholars and users of Swahili must apply the restraint voiced by Chimera (1998), among others, that „uncritical acceptance“ of certain terms into Swahili from local non-standard dialects and other languages, „could in the long run, stunt Swahili's development“ (p. 40).

The use of these techniques and processes is again expounded by Masabo and Mwansoko (1992) in their foreword to their work on the terminology on motor mechanics. They caution on the need to pay attention to the semantic shifts in the usage of particular terms while suggesting their usage as technical concepts. Such changes include the expansion or limitation

of the semantic field (e.g. *nyonya* (exploit), *kupe* (exploiter), *nyayo* (Kenyan philosophy of 'peace love and unity') etc.

The under-utilization of some of the techniques such as compounding, borrowing from local languages and loan translation is also pointed out. As the examples from these three techniques ascertain, the processes are quite productive if properly employed:

Compounding: N + N

nucleus (biology)	<i>kiini</i>	+	<i>tete</i>	=	<i>kiinitete</i>
microphone (physics)	<i>kipaaza</i>	+	<i>sauti</i>	=	<i>kipaazasauti</i>

Loan Translation

saxophone	<i>mdomo wa bata</i>
investment	<i>kitega uchumi</i>
management	<i>halmashauri ya usimamizi</i>

Calquing:

novella	<i>novela (kijiriwaya)</i>
data	<i>deta</i>
drama	<i>drama</i>
show	<i>shoo</i>
stage	<i>steji</i>
manager	<i>meneja</i>

Acronyms

supper	<i>chakula cha jioni</i>	<i>chajio</i>
HIV/AIDS	<i>Upungufu wa Kinga Mwilini</i>	<i>ukimwi</i>

The Challenge of Swahili Medium

Obviously the un-coordinated development and adoption of the Swahili terminology has given rise to a number of problems mainly to do with lack of standardization and harmonization of the terms developed. This situation complicates the task of teaching linguistics and literature courses in the Swahili medium at the University level. In the teaching of linguistics and literature in Swahili medium, one is likely to encounter various kinds of problems. These problems may be categorized as:

- (a) cases of lack of an agreed and suitable Swahili technical term.
- (b) inadequate Swahili equivalences.
- (c) competing terms
- (d) distorted terms
- (e) partially nativized terms
- (f) lack of harmonisation

Below are a few examples of each of the above categories, a number of which have been published in Swahili grammar books. In the first instance, in both literature and linguistics,

there are many technical concepts in English which lack suitable Swahili equivalents. For example, Masoko and Mdee (1984) give these equivalents:-

connotation	<i>maana nasibishi</i>
denotation	<i>maana halisi</i>

The Swahili equivalents here lack specificity. For instance, *maana halisi* could also suggest 'true meaning' while the equivalent for 'connotative' meaning could also be interpreted as meaning, 'associative' meaning. The same goes for the following English terms for which no Swahili equivalents are available, but which are widely encountered in courses such as semantics and discourse analysis. Here are a few examples:

propositional meaning	medium
presupposition	vibration
entailment	function

The suggested Swahili words are too general and do not satisfy the specialised meaning in the register. Thirdly, there are instances where two or more terms are used as synonyms thus creating confusion as to which one is more correct. Here are some examples:

linguistics	<i>isimu</i>	<i>lugha wilayali</i>	(Islamic University, Mbale, Uganda)
palate	<i>kaakaa</i>	<i>burutio</i>	(Moi University, Kenya)
complement	<i>kijalizo</i>	<i>kikamilishi</i>	(Makerere, Uganda)
process	<i>mfanyiko</i>	<i>mnyumbusho</i> (<i>mnyambuliko</i>)	(Makerere, Uganda)
universal	<i>sarufibia</i>	<i>sarufi ya kilimwengu</i>	(Makerere Uganda)
grammar			
predicator	<i>kiarifu</i>	<i>prediketa</i>	(Besha, Dar es Saaam University, Tanzania)
aspect	<i>hali</i>	<i>aspekti</i>	(Nairobi University, Kenya)
family	<i>familia</i>	<i>jamii/kizazi</i>	(TUKI, 1990, Tanzania)

(see Mwaro 1998: 6)

noun(s)	<i>nauni</i> <i>nomino</i>	<i>jina</i>
concordial agreement	<i>upatano</i>	<i>ukubaliano</i>
vowel(s)	<i>irabu</i>	<i>vokali</i>
stops	<i>kituo</i>	<i>kizuiwa</i>
nasals	<i>nazali</i>	<i>vipua</i>
word	<i>shina</i>	<i>mzizi</i>
'root'/'stem'		
criticism	<i>uhakiki</i>	<i>uchambuzi</i>
engineering	<i>uinjinia</i>	<i>uhandisi</i>

In addition, lack of harmonization of Swahili technical vocabulary has given rise to

regional differences in usage while, in some cases, differences exist between universities, departments and individual lecturers. Here are some examples:

English	Swahili terms used
agglutinating language	<i>lugha ambishi/bainishi</i>
source language	<i>lugha toaji/changizi/kopesaji</i>
target language	<i>lugha pokezi/kopaji/lengwa</i>
voiced sounds	<i>sauti sikhuna/hafifu/zisizomsepetuko/mrindama</i>
fricatives	<i>kipulizo/mkwaruzo/kiswamizo</i>
nasals	<i>ving'ong'o/mang'ong'o/nasali/nazali/kipua</i>
rhythm	<i>ridhimu/mdundo/mpigo</i>
text	<i>makala/matini/kifungu habari/maandishi</i>

Even though basically there is nothing wrong or curious about the existence of synonyms of technical vocabulary, if not harmonised and standardized such random usage may impede wide communication among experts or professionals. A number of these competing terms sound natural while some are obviously more closely related to English rather than Swahili. The following examples seem to distort the original concept in English and give a meaning that is only partially correct.

<i>kitenzi kisoukomo</i>	infinitive verb
<i>unyambuaji</i>	derivation
<i>ukopaji sisisi</i>	calque or loan translation (may imply random borrowing)
<i>uambishaji</i>	inflexion
<i>ukopaji sisisi</i>	liberal borrowing

In the first example, *kisoukomo* translates roughly to 'unlimited', unconstrained or 'unbridled'. This is simply not exactly the meaning of an infinitive verb. Similarly, the term *unyambuaji* (derivation) seems to wrongly imply that derivation is similar to inflection. The term *ukopaji sisisi* which is translated as 'literal borrowing' is again a misrepresentation. The calquing and loan translation have also been widely used to develop Swahili technical terminology. In Swahili, a calqued word is africanized by being given the bantu syllable structure e.g.

bicycle	<i>baiskeli</i>
doctor	<i>daktari</i>

However, some calqued terms are unnecessary since they seek to express concepts that are already well covered by existing Swahili words as 'minstrel' (*manju*). Loan translation, on the other hand, entails a process of borrowing a word and rendering its meaning in the recipient language by paraphrasing it. Swahili has done this successfully in a number of cases as the examples below indicate:

English	Swahili	Literal meaning
microphone	<i>kipaaza sauti</i>	'magnifier of sound'
saxophone	<i>mdomo wa bata</i>	'mouth of a duck'
investment	<i>kitega uchumi</i>	'catcher of economy'
chief of protocol	<i>mkuu wa itifaki</i>	

Some of the technical terms adapted from foreign languages are only partially nativized. The major problem here is lack of an agreed procedure for standardizing and harmonising the calqued words. As a result, the terms variously end in -ia, -i and -a. Here are some examples from the linguistic register:

English	Swahili
lexicography	<i>leksikografia</i>
lexicology	<i>leksikolojia</i>
anthropology	<i>anthropolojia</i>
semantics	<i>semantiki</i> (or <i>semantiksia</i>)
syntax	<i>sintaksia</i>
sentence	<i>sentensi</i>
consonant	<i>konsonanti</i>
obstruent	<i>obstruenti</i>
sonorant	<i>sonoranti</i>
acronym	<i>akoronimi</i>
acoustics	<i>akustika</i> (-ki, -kisi, -kia etc)

One is therefore at a loss as to how to restructure or Africanize new technical terms that one meets in routine lecturing, reading or writing. Some coinages recommended by TUKI are either inconsistent in their morphological structure or difficult to pronounce. Here are some examples from Masoko and Mdee (1984):

Unclear terms

English	Swahili
fun	<i>kichezea mwana</i>
implied or sub- duded metaphor	<i>sitiari mfichu</i> (others say <i>sitiarifiche</i>)
conceit	(<i>sitiari fiche</i>)
fiction	<i>bunikizi</i> (others say <i>bunifu</i>)
content	<i>maudhui?</i>
theme	<i>maudhui?</i>
climax	<i>upeo</i>
anticlimax	<i>upeo wa chini</i>

For example, here one wonders why not call 'climax' *upeo wa juu*, if anticlimax is rendered *upeo wa chini*? In addition, even though TUKI terminological publications have been quite useful in the teaching and research endeavours at the tertiary levels over the years, some need revision and expansion in the light of the recent development in the language. A

good example of such publication is the *Kamusi Sanifu ya Isimu na Lugha* (1990) and the list of literary technical terms appearing in the *Mulika* number 16 of 1984. But apart from words in content usage, there is need to also invent terminologies to clarify or differentiate existing and unclear ones. In this respect, one agrees totally with the observation by Kitsao (1989) that a number of technical concepts still lack Swahili equivalents despite their being in use for a long time. In some of these cases, the adopted Swahili term is given a general and widely inclusive meaning, thus causing confusion through imprecision, e.g.:

paper	-	<i>karatasi?/makala</i>
article	-	<i>makala?</i>
column	-	<i>makala?</i>
research paper	-	<i>makala?</i>

It is obvious that Swahili is yet to get technical words that could express specifically each of the above categories of „paper“. Although no dictionary can contain the latest terms in recent or current use in any language, in teaching such courses as „theory of translation and interpretation“, one is always confronted with the need to translate into Swahili many such current terms. This is a common problem for other language professionals as journalists, publishers, writers and communicators. Examples of such words include the lexical items referred to in the introduction (see p. 1).

The Case of Over-Production of Terminology

The enthusiasm of both western-educated Swahili „nationalists“ such as Abdulaziz (1995), Mwansoko (1990) and Chimera (1998) and their „conservative“ native counterparts (e.g. Nabahany, 1985; 1998) to develop Swahili technical terminology has been overwhelming. However, this zeal often seems to imply that Swahili should have „ready-made“ terms to explain even concepts that are not yet fully adopted in the local culture. This situation has tended to motivate individual scholars to out-do each other in the efforts to invent or coin new technical terminology for Swahili. The latest in this vein is Chimera (1998) where he argues that „rather than waste resources in standardizing or harmonising new technical vocabulary, experts should readily accept any suggested new term so long as users are happy with it and use it with ease“ (p. 46). Therefore, in the spirit of „borrowing and, Swahilizing the loan word ...“ (p. 48), the author suggests the following technical terms:

English	Swahili
gravity	<i>vutoti</i>
mass	<i>sambao/tandao</i>
volcano	<i>volkeno/ripukochi/ripukoti/vukuti</i> (p. 49)

It is not clear why the above scholar advocates the development of terms even in cases where other terms have been adopted and have taken root. Are synonyms necessary in scientific and technical fields? In the view of this writer, such an effort would amount to

introducing unnecessary terminological competition which might result in complications in the communication process. Below are some examples of suggested terms where others are already in use both in speech and writing. The suggestions are made by Nabahany (1998) and Chimera (1998):

English	Swahili (suggested)	already adopted
computer	<i>tarakilishi/ngamiza</i>	<i>kompyuta</i>
gender	<i>umenke</i>	<i>uana</i>
solar	<i>shamsa</i>	<i>jua</i>
energy	<i>ngosi</i>	<i>kawi (or nishati)</i>
lunar	<i>kamari</i>	<i>mwezi</i>
telephone	<i>rununu</i>	<i>simu</i>
television	<i>runinga</i>	<i>televisheni</i>
radio	<i>mwengoya</i>	<i>radio</i>
ray(s)	<i>uka</i>	<i>mwale (mi-)</i>
university	<i>n'daki</i>	<i>Chuo Kikuu</i>
institute	<i>mwimo</i>	<i>taasisi</i>
science	<i>ulimbe</i>	<i>sayansi</i>
picture	<i>uyoo</i>	<i>picha</i>
psychology	<i>ushunuzi</i>	<i>saikolojia</i>
committee	<i>tengo</i>	<i>kamati</i>

These suggestions present three problems:

1. that the innovators seem to believe that there is need for a new word even where another already exists.
2. that archaic Swahili words that are no longer heard in modern speech are to be resurrected to replace Arabic ones. Most of the old Swahili words exist only in classical poetry or in folkloristic material and are just as strange to modern speakers as Arabic or any other foreign loans (Mwaro 1998: 5).
3. that terminological innovators offer no linguistic criteria to be followed in coining or inventing the new terminology. No line is drawn between existing or widely used international terminology and the local non-technical vocabulary. Thus, the two experts here have laboured profusely to invent and Swahilize terms to express scientific and technical concepts such as in physics, computer science and electronics which already have other terms. One wonders whether this is not a case of re-inventing the wheel.

Conclusion

One agrees strongly with the observation put forward by Kiango (1996) with regard to the challenges of using Swahili in the technical and scientific age of the next millennium. He states: „The 21st Century will be governed by science and technology which will certainly and completely overhaul the cultural outlook. The new technological culture will in turn change the language (Swahili).“ However, it is a fact that Swahili is currently deficient in

these two registers. In order to accelerate the desired changes, there is need for all the Swahili experts in East Africa and beyond to heed the advice voiced by Temo (1984: 121) when he called for a common forum for „language planners of countries using or intending to use Swahili to come together and plan a common scientific strategy“ for developing and modernising the language. Only this step will enable this important African language take its rightful place in the scientific, technological and educational fields in the next millennium. This paper has not argued for the adoption of a single approach to the development of Swahili technical terminology. It is obvious that Swahili will continue to borrow from both African and foreign languages as well as coin new terminology especially in science and technology. Borrowing will also occur for concepts in domains that have no parallel in the culture of the Waswahili or other African peoples in the region. However, borrowing should never be a substitute or excuse for lack of linguistic creativity or research on the part of the experts.

As far as the adoption or acceptability of new terms is concerned, one agrees with Mdee (1980: 59) that this is best left to the speakers or users. But this is practical only in non-technical fields. In the scientific and technical areas, there is need for a systematic and formalised machinery for the development, dissemination and adoption to ensure the international nature of such terminology.

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